

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-42. (canceled)

43. (new) A method for treating hyperglycemic syndrome and/or type II diabetes in a subject, comprising:

administering to a subject in need thereof an effective amount of prebiotic non-digestible oligosaccharides, wherein said prebiotic non-digestible oligosaccharides comprise chain formations of monosaccharides selected from the group consisting of glucose, fructose, galactose, xylose, mannose, rhamnose and fucose, and whose degree of polymerization is between 2 and 10.

44. (new) The method according to claim 43, wherein the subject has type II diabetes.

45. (new) The method according to claim 43, wherein the subject has hyperglycemic syndrome or is predisposed to hyperglycemic syndrome.

46. (new) The method according to claim 43, wherein the subject is obese or at risk of becoming obese and is predisposed to hyperglycemic syndrome.

47. (new) The method according to claim 43, wherein the subject has clinical signs of Type II diabetes selected from the group consisting of a decrease in glucose tolerance and sensitivity to insulin.

48. (new) The method according to claim 43, wherein prebiotics are selected from the group consisting of

- glucooligosaccharide (GOS) of general formula $[O-\alpha-D\text{-glucopyranosyl}]_n$ wherein n is an integer from 2 to 10, wherein at least one of said GOS is of general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{2)}][O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{6)}]_n[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}]O\text{-D-glucopyranose}$, wherein n is an integer from 1 to 10, and the position of the $\alpha(1\rightarrow2)$ bond is situated either at the non-reducing end, or is situated branched on the next-to-last glucose of the chain; general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}]_n$ wherein n is an integer from 2 to 10; or general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{6)}]_n$ wherein n is an integer from 2 to 10,

- fructooligosaccharides (FOS) of general formula $O\text{-}\alpha\text{-D-glucopyranosyl-(1}\rightarrow\text{2)}-[O\text{-}\beta\text{-D-fructofuranosyl-(1}\rightarrow\text{2)}]_n$ wherein n

is an integer from 2 to 9; or $[O-\beta-D\text{-fructofuranosyl}-(1\rightarrow2)]_m$,
wherein m is an integer from 1 to 9,

- galactooligosaccharides of general formula $O-\alpha-D\text{-glucopyranosyl}-(1\rightarrow4)-[O-\beta-D\text{-galactopyranosyl}-(1\rightarrow6)]_n$ where n is an integer from 2 to 5,

- xylooligosaccharides of general formula $[O-\beta\text{-xylofuranosyl}-(1\rightarrow4)]_n$ where n is an integer from 2 to 9,

- soybean oligosaccharides wherein at least one of said soybean oligosaccharides is raffinose of formula $O-\alpha-D\text{-galactopyranosyl}-(1\rightarrow6)-O-\alpha-D\text{-glucopyranosyl}-(1\rightarrow2)-O-\beta-D\text{-fructofuranoside}$; or stachyose of formula $[O-\alpha-D\text{-galactopyranosyl}-(1\rightarrow6)]_2-O-\alpha-D\text{-glucopyranosyl}-(1\rightarrow2)-O-\beta-D\text{-fructofuranoside}$,

- lactulose of formula $O-\beta-D\text{-galactopyranosyl}-(1\rightarrow4)-O-\beta-D\text{-fructofuranose}$, and

- lactosaccharose of formula $O-\beta-D\text{-galactopyranosyl}-(1\rightarrow4)-O-\alpha-D\text{-glucopyranosyl}-(1\rightarrow2)-O-\beta-D\text{-fructofuranoside}$.

49. (new) The method according to claim 43, wherein the GOS are present on a dry matter basis as follows:

less than 1% fructose,

less than 4% glucose,

9-11% disaccharides wherein at least one disaccharide is selected from the group consisting of maltose, leucrose, and sacharose,

9-11 % trisaccharides selected from the group consisting of panose and maltotriose,

5 to 7% GOS with a degree of polymerization 4,

8 to 10% GOS* with a degree of polymerization 4,

18 to 22% GOS with a degree of polymerization 5,

36 to 44% GOS with a degree of polymerization greater than 5, and

wherein each GOS comprises a glycosidic $\alpha(1\rightarrow2)$ bond at its non-reducing end or carried by the next-to-last glucose, with the exception of GOS* which does not contain any.

50. (new) The method according to claim 49, wherein prebiotics comprising GOS are administered at a rate of 1.5g/kg/day or a rate of approximately 10 to 30 g/day.

51. (new) A food composition, nutritional additive, functional food or nutraceutical for the nourishment of subject having hyperglycemic syndrome and/or type II diabetes in a subject, comprising one or more prebiotics wherein said prebiotics are chosen from the compositions of non-digestible oligosaccharides comprising chain formations of identical or different monosaccharides, whose degree of polymerization

varies between 2 and 10, and whose monosaccharides are selected from the group consisting of glucose, fructose, galactose, xylose, mannose, rhamnose and fucose, and

wherein a food composition substantially comprising a mixture of isomaltotriose, isomaltotetraose and isomaltopentose is excluded, and

wherein fructooligosaccharides are excluded.

52. (new) The food composition, nutritional additive, functional food or nutraceutical, according to claim 51, wherein the prebiotics are chosen from:

- glucooligosaccharides (GOS), namely glucose polymers of general formula $[O-\alpha-D\text{-glucopyranosyl}]_n$ wherein n is an integer from 2 to 10, wherein at least one of said glucooligosaccharides is selected from the group consisting of the polymers of formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{2)}][O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{6)}]_n[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}]O-D\text{-glucopyranose}$ wherein n is an integer from 1 to 10, and the position of the $\alpha(1\rightarrow2)$ bond is situated either at the non-reducing end, or is situated branched on the next-to-last glucose of the chain; the polymers of the maltooligosaccharide type of general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}]_n$ wherein n is an integer from 2 to 10; and the isomaltooligosaccharides of general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{6)}]_n$ wherein n is an integer from 2 to 10,

- galactooligosaccharides of general formula $O-\alpha-D-$ glucopyranosyl-(1→4)-[$O-\beta-D$ -galactopyranosyl-(1→6)]_n wherein n is an integer from 2 to 5,

- xylooligosaccharides of general formula [$O-\beta-$ xylofuranosyl-(1→4)]_n wherein n is an integer from 2 to 9,

- soybean oligosaccharides wherein at least one of said soybean oligosaccharides is selected from the group consisting of raffinose of formula $O-\alpha-D$ -galactopyranosyl-(1→6)- $O-\alpha-D$ -glucopyranosyl-(1→2)- $O-\beta-D$ -fructofuranoside and stachyose of formula [$O-\alpha-D$ -galactopyranosyl-(1→6)]₂- $O-\alpha-D$ -glucopyranosyl-(1→2)- $O-\beta-D$ -fructofuranoside,

- lactulose of formula $O-\beta-D$ -galactopyranosyl-(1→4)- $O-\beta-D$ -fructofuranose,

- lactosaccharose of formula $O-\beta-D$ -galactopyranosyl-(1→4)- $O-\alpha-D$ -glucopyranosyl-(1→2)- $O-\beta-D$ -fructofuranoside.

53. (new) The food composition, nutritional additive, functional food or nutraceutical, according to claim 51 whose prebiotics are chosen from the glucooligosaccharides (GOS), the composition of said glucooligosaccharides (GOS) being as follows (dry matter content):

- fructose: less than 1%,
- glucose: less than 4%,

- disaccharides where at least one of said disaccharides is selected from the group consisting of maltose, leucrose, and sacharose : from 9 to 11%,

- trisaccharides where at least one of said trisaccharides consisting of panose, or maltotriose: from 9 to 11%,

- GOS with a degree of polymerization 4: from 5 to 7%,
- GOS* with a degree of polymerization 4: from 8 to 10%,
- GOS with a degree of polymerization 5: from 18 to 22%,
- GOS with a degree of polymerization greater than 5: from 36 to 44%, and

wherein each GOS comprises a glycosidic $\alpha(1\rightarrow2)$ bond at its non-reducing end or is carried by the next-to-last glucose, except GOS* does not contain any.

54. (new) A pharmaceutical composition comprising a pharmaceutically acceptable vehicle, one or more prebiotics chosen from the compositions of non-digestible oligosaccharides comprising chain formations of identical or different monosaccharides, whose degree of polymerization varies between 2 and 10, and whose monosaccharides are chosen from glucose, fructose, galactose, xylose, mannose, rhamnose and fucose, and wherein fructooligosaccharides are excluded.

55. (new) The pharmaceutical composition according to claim 54, wherein the prebiotics are chosen from:

- glucooligosaccharides (GOS), namely glucose polymers of general formula $[O-\alpha-D\text{-glucopyranosyl}]_n$ wherein n is an integer from 2 to 10, wherein at least one of said glucooligosaccharides are selected from the group consisting of polymers of formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{2)}][O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{6)}]_n[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}]O-D\text{-glucopyranose}$ wherein n is an integer from 1 to 10, and the position of the $\alpha(1\rightarrow2)$ bond is situated either at the non-reducing end, or is situated branched on the next-to-last glucose of the chain; polymers of the maltooligosaccharide type of general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}]_n$ wherein n is an integer from 2 to 10; and isomaltooligosaccharides of general formula $[O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{6)}]_n$ wherein n is an integer from 2 to 10,

- galactooligosaccharides of general formula $O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{4)}-[O-\beta-D\text{-galactopyranosyl-(1}\rightarrow\text{6)}]_n$ wherein n is an integer from 2 to 5,

- xylooligosaccharides of general formula $[O-\beta\text{-xylofuranosyl-(1}\rightarrow\text{4)}]_n$ wherein n is an integer from 2 to 9,

- soybean oligosaccharides wherein at least one of said soybean oligosaccharides is selected from the group consisting of raffinose of formula $O-\alpha-D\text{-galactopyranosyl-(1}\rightarrow\text{6)}-O-\alpha-D\text{-glucopyranosyl-(1}\rightarrow\text{2)}-O-\beta-D\text{-fructofuranoside}$ and stachyose of

formula $[O - \alpha - D - \text{galactopyranosyl} - (1 \rightarrow 6)]_2 - O - \alpha - D - \text{glucopyranosyl} - (1 \rightarrow 2) - O - \beta - D - \text{fructofuranoside}$,

- lactulose of formula $O - \beta - D - \text{galactopyranosyl} - (1 \rightarrow 4) - O - \beta - D - \text{fructofuranose}$,

- lactosaccharose of formula $O - \beta - D - \text{galactopyranosyl} - (1 \rightarrow 4) - O - \alpha - D - \text{glucopyranosyl} - (1 \rightarrow 2) - O - \beta - D - \text{fructofuranoside}$.

56. (new) The pharmaceutical composition according to claim 54, wherein the prebiotics are chosen from the glucooligosaccharides (GOS) and the composition of said glucooligosaccharides (GOS) are as follows (dry matter content):

- fructose: less than 1%,
- glucose: less than 4%,
- disaccharides wherein at least one of said disaccharides is selected from the group consisting of maltose, leucrose, and sacharose : from 9 to 11%,
- trisaccharides wherein at least one of said trisaccharides is panose, or maltotriose: from 9 to 11%,
- GOS with a degree of polymerization 4: from 5 to 7%,
- GOS* with a degree of polymerization 4: from 8 to 10%,
- GOS with a degree of polymerization 5: from 18 to 22%,
- GOS with a degree of polymerization greater than 5: from 36 to 44%, and

wherein each GOS comprises a glycosidic $\alpha(1\rightarrow2)$ bond at its non-reducing end or carried by the next-to-last glucose, except GOS* does not contain any.

57. (new) The pharmaceutical composition according to claim 54, wherein said composition is in a form which can be administered orally.

58. (new) The pharmaceutical composition according to claim 54, wherein said composition is administered at a rate of approximately 10 to 30 g/day, up to approximately 100 g/day when GOS is present in said composition.

59. (new) The composition according to claim 51, comprising:

prebiotic non-digestible oligosaccharides comprising chain formations of monosaccharides selected from the group consisting of glucose, fructose, galactose, xylose, mannose, rhamnose and fucose, and whose degree of polymerization is between 2 and 10, and

wherein said prebiotics are selected from the group consisting of

- glucooligosaccharide (GOS) of general formula $[O-\alpha-D\text{-glucopyranosyl}]_n$ wherein n is an integer from 2 to 10, wherein at least one of said GOS is of general formula $[O-\alpha-D\text{-}$

glucopyranosyl-(1→2)][O-α-D-glucopyranosyl-(1→6)]_n[O-α-D-glucopyranosyl-(1→4)]O-D-glucopyranose, wherein n is an integer from 1 to 10, and the position of the α(1→2) bond is situated either at the non-reducing end, or is situated branched on the next-to-last glucose of the chain,

- galactooligosaccharides of general formula O-α-D-glucopyranosyl-(1→4)-[O-β-D-galactopyranosyl-(1→6)]_n where n is an integer from 2 to 5,

- xylooligosaccharides of general formula [O-β-xylofuranosyl-(1→4)]_n wherein n is an integer from 2 to 9,

- soybean oligosaccharides wherein at least one of said soybean oligosaccharides is raffinose of formula O-α-D-galactopyranosyl-(1→6)-O-α-D-glucopyranosyl-(1→2)-O-β-D-fructofuranoside; or stachyose of formula [O - α - D - galactopyranosyl - (1→6)]₂ - O - α - D - glucopyranosyl - (1→2) - O - β -D-fructofuranoside,

- lactulose of formula O-β-D-galactopyranosyl-(1→4)-O-β-D-fructofuranose, and

- lactosaccharose of formula O-β-D-galactopyranosyl-(1→4)-O-α-D-glucopyranosyl-(1→2)-O-β-D-fructofuranoside.

60. (new) The composition according to claim 59, wherein the composition further comprises a pharmaceutically acceptable vehicle.

61. (new) The composition according to claim 60, wherein the composition is in a form which can be administered orally.

62. (new) The composition according to claim 59, wherein the composition comprises GOS in a daily dosage of 10 to 100 g/day.

63. (new) A composition, comprising:
prebiotic glucooligosaccharides (GOS) on a dry matter basis as follows:

less than 1% fructose,

less than 4% glucose,

9-11% disaccharides wherein at least one disaccharide is selected from the group consisting of maltose, leucrose, and sacharose,

9-11 % trisaccharides selected from the group consisting of panose and maltotriose,

5 to 7% GOS with a degree of polymerization 4,

8 to 10% GOS* with a degree of polymerization 4,

18 to 22% GOS with a degree of polymerization 5,

36 to 44% GOS with a degree of polymerization greater than 5, and

wherein each GOS comprises a glycosidic $\alpha(1\rightarrow2)$ bond at the non-reducing end or at the next-to-last glucose, with the exception of GOS* which does not contain a glycosidic $\alpha(1\rightarrow2)$ bond.